

## Victorian 6502 User Group Newsletter

# KAOS

For People Who Have Got Smart

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OSI	SYM	KIM	AIM	ATARI	APPLE	UK101	ORANGE
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January 1982

To all those people who were concerned about the non-arrival of the January newsletter.....this is it, even though it's Febuary. With luck the February newsletter will arrive on time (in about two weeks). If you look at the top of this page you will notice that we have a new heading, with some extra names of people who have offered to help with your queries and problems.

If you have a hardware problem, please don't try and contact David Anear. David is in America on business and won't be back till mid April. In his absence, Jeff Rae will be attempting? to answer your problems. If David has any spare time he will let America Know what we are up to at KAOS. He's taken a couple of GET SMART T-shirts with him and he may even put in a take over bid for AARDVARK. (That's if CONTROL agents don't get him first.) I doubt if he will have time to write and let us know what is going on over there, but I'm sure we'll get lots of interesting and up to date news from America at the April meeting.

On Wednesday 3rd February, we went to a very interesting demonstration on The Australian Source, from now on to be called TAS. It appears to live up to all the advertised claims and a surprising amount of information on a wide variety of topics is available.

Something that wasn't mentioned in the last newsletter and should be emphasized is that TAS is the only Source in the world that actually down loads a program to your machine. This allows you to select a program, load it and then break from the Source and play the game, modify, save it or what ever at your leisure. This means that your on-line time charges are very low and you can actually save, on cassette or disk, any program on the Source.

We have paid TAS the joining fees and as we had more than fifty, you will have a credit of \$5.00 worth of user time. Those of you who joined should have received their membership kit by now. On the page headed Schedule PART A and under the heading SCHEDULE OF FEES AND RATES PART B there is the line \$4.50 per hour 6pm-8pm weekdays. As all the previous advertising stated the time as 6pm-8am weekdays, we assume this is a typing error.

Because of the short notice we were able to give and the fact that a lot of people are short of money after their holidays, we have arranged with TAS to extend the discount period to the 28th February, so if you are considering joining, please get your money in as soon as possible. We are hoping to arrange a demonstration of TAS at the next meeting which will be held on the 28th February.

## RESET ROUTINES

The SYM is probably the only microcomputer system which allows the user to write his own reset routine without the need to rewrite the monitor.

With a little bit of clever hardware, Synertek have actually moved the RESET vector to a user strappable location (currently in SUPERMON). Normally the 6502 uses \$FFFC and \$FFFD for the RESET vector. The extra circuitry forces the microprocessor to use the fourth and third highest locations of one of the four on-board ROMs. Installing your own reset routine is simply a matter of programming it into a 2716 or 2732, inserting it into one of the on-board sockets as described last month and switching two straps on the board.

One of the signals generated by the SYM is known as  $\overline{\text{POR}}$  (Power On Reset) and should not be confused with the  $\overline{\text{RESET}}$  signal itself.  $\overline{\text{POR}}$  forces the 6502 to fetch the vector from a selected ROM socket and ignore the others regardless of the addressing. This signal must be reset during the initial stages of your reset routine otherwise all of your ROMs will appear to be the reset ROM. BAIC, RAE and even SUPERMON will be 'invisible'.  $\overline{\text{POR}}$  is disabled by writing \$CC in location \$A00C and magically all of the other ROMs will reappear in the memory map. Putting \$CC in \$A00C will also stop the cassette recorder if it is connected appropriately. There are four straps associated with  $\overline{\text{POR}}$  located just above the vacant VIA socket at the bottom left hand side of the board. Pad 19 (far left) is the  $\overline{\text{POR}}$  signal and the other three top pads (all number 20) are connected to +5V. The lower four pads correspond to P0, P2, P3 and P1 reading left to right. One of these pads must be connected to pad 19 and the rest to pads 20. Currently N goes to 19 and P, R and S go to 20. When you have decided which socket your reset routine is to go into, simply switch the appropriate jumper with N-19.

Before writing your reset routine, have a look at the one in SUPERMON. This can be found in the listing at the back of your reference manual. The routine starts at location \$8B4A. Your routine must initialize the stack pointer, disable the  $\overline{\text{POR}}$  signal and copy the initial data into the system RAM (do not forget to call subroutine ACCESS to remove the write protection from the system RAM).

Your reset routine should end with a jump to WARM (\$8003) or NEWDEV (\$8B64) if you still wish to have the option of using the hex keypad or a terminal on power-up. There are many other options open to you like running a program of your own if you are using your SYM for a dedicated job, or jumping into BASIC by ending your reset routine with JMP \$C000. The possibilities are endless.

You should now be able to easily install your own reset routine. Now for the hard part - what to put in it.....

Next Month:- SUPERMON

This will be the first of several parts describing how SUPERMON works, how to use its many subroutines and how to add your own commands to the 33 existing commands.

## 2716/2732 EPROM PROGRAMMER FOR THE SYM

This EPROM programmer can be built for less than \$20.00 and is capable of programming 2716s or 2732s at the flick of a switch. The 4040 counter removes the need for buying the VIA for the empty socket which is required for some other EPROM programmers.

The circuit diagram is self explanatory except for the SENSE line. When programming a 2716, the  $\overline{CE}$  line must go high for 50ms. This means that the program must know which device is to be programmed, since using

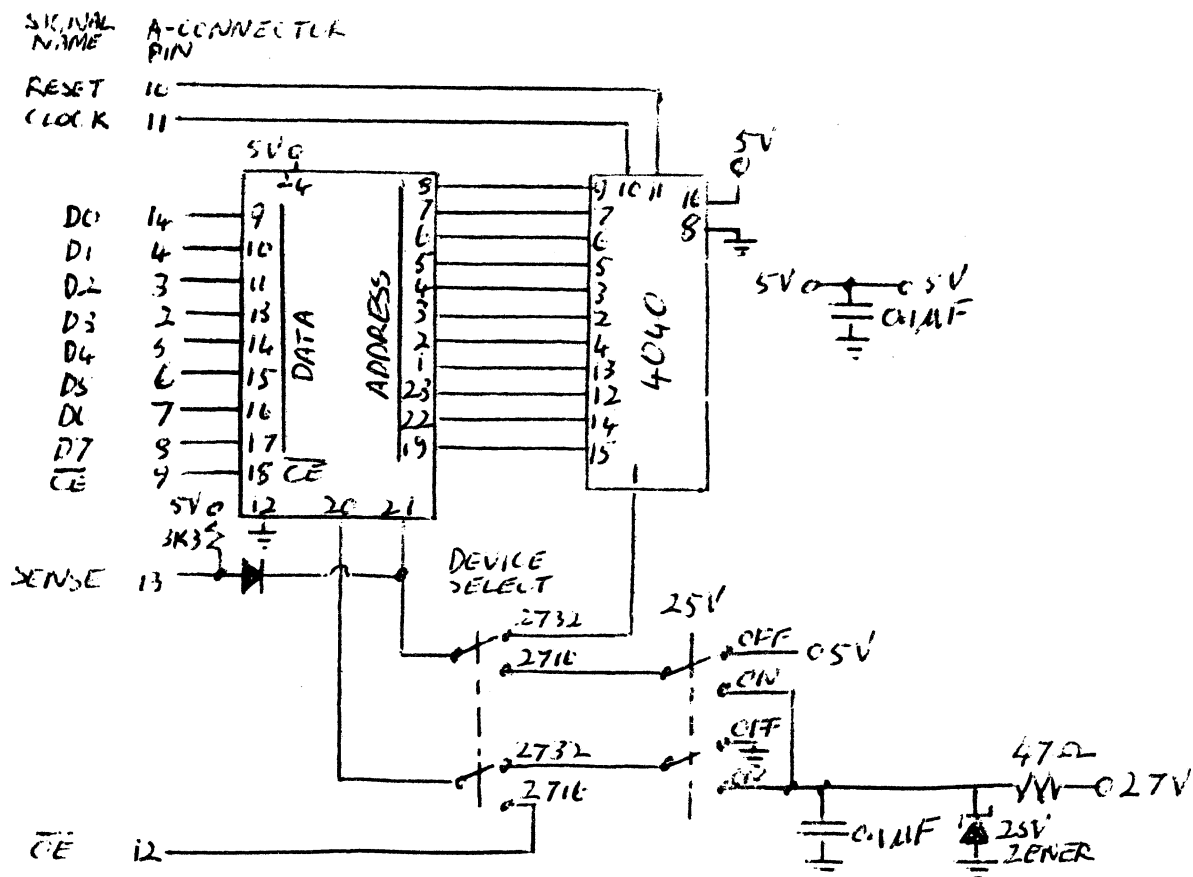
The circuit diagram is self explanatory except for the SENSE line. When programming a 2716, the CE line must go high for 50ms. Unfortunately the 2732 requires the normally high signal to go low for 50ms. This means that the program must know which device is to be programmed, since using the DEVICE SELECT switch to select the appropriate signal would require a triple pole switch. The SENSE line allows the SYM to read the position of the DEVICE SELECT switch so that the program can deliver the correct programming pulse.

The 25V supply is derived using a 25V zener (use 2 12V zeners and a forward biased diode in series if the 25V zener is not available) from a 27V source. Three 9V batteries in series will give the required 27V. During programming, the current drawn through the Vpp pin of the EPROM can be as high as 30mA, so do not expect the batteries to last forever!

The zero insertion force socket will account for about half of the total cost, but it will be money well spent. You should find most of the other components in your junk box. The programmer can be built on a piece of scrap veroboard in a night.

The software to drive the programmer will be available through KAOS.

Brian Campbell



## ATARI NEWS

Hello again. I hope you all had a good New Year's Eve party. I was slaving over my Atari being zapped by Photon torpedoes. It's a new game (arcade type) from Crystal with incredible graphics. Your mission is to save the 18 people of the city of Potera, on the planet of Kronos, in the Vegan system, from the incredible indestructable lazerman. He picks up the people from the city with his space ship and tries to drop them into the volcano. If you are very good with the joystick, you can catch the people in the nick of time. There are other ways to save the people. If you fly your ship directly over the people in Potera, they will hang on for dear life, by doing this you can pick up all the people at once. After you have all the people, you take them on to a city past the volcano, to safety. This will drop the gates to the pneumatic tubes. They tell me that the game starts to get hard after you get the gates open. As you've probably guessed, I have not got that far yet. My excuse is that there is a bug in the program and I'm sticking to it. Once again John Bell and Mike Potter have done an excellent job on Protectors. The horizontal scrolling is similar to the scrolling in the popular Arcade game. The amazing graphics and the incredible crystalsonic sound makes this a good program to buy.

I have ordered a review copy of a new arcade game from CCI. It's a centipedes type game. Very daring company, wonder how long it will be before Atari stomps on them. I will do a review on this program next month. Ghost Hunter is also available from CCI. This is the ultimate in Pacman type games and is supposedly better than Jawbreakers, the game Atari stomped on a few months ago. They will soon be releasing an Intellivision type football game.

You heard it first in KAOS. There have been two new games written, and Atari is deciding which version to release. Battlezone has been written by an outside vendor for Atari and it is now being screened for bugs. Tempest has been contracted to the same people. It is a good arcade game, see it at your local fun parlor.

RUMOURS: The all new ATARI 600 computer. Yes, a strong possibility of a 400 with a 800 keyboard for introduction in about 8 months. Also a business machine called the Atari 1000. These are rumours, but remember what happened to our last lot of rumours, they are now fact. There is a new Atari TV games unit under development with graphics better than Intellivision and a new joystick that will blow Intellivision away.

FUTURETRONICS now have the release version of Pilot. They have loaned me a copy for evaluation. It is well packaged and documented, you get one ROM cartridge, two cassette programs (4 sides), three well written books and very expensive packaging.....and price to match. They have also loaned me a Personal Finance program. It is two disks full of programs including a create data, a record keeper, a checkbook balancer, a budget analyzer and a budget forcaster. The cheeky thing even tells you when you're about to or have exceeded your set budget. Well that's it for this month. I can be contacted on 481 2215 if you need to know anything else.

Gerry

## FORTHCOMING EVENTS.....

The Computer Education Group of Victoria (CEGV) will hold its Annual Conference at La Trobe University from May 10th to May 12th.

Keynote speakers will include Dr. J. Howe, Head of the Department of Artificial Intelligence, Edinburgh University. Dr. Howe has investigated the use of LOGO programming for teaching Mathematics to Primary and Secondary students and student-teachers. He has also developed a computer-based approach to the teaching of reading to handicapped children.

Dr. Tom Richards, of the Philosophy Department at La Trobe University will be demonstrating the SMALLTALK language, which allows multiple, independent windows on a terminal screen, thus permitting partially-completed interaction to be displayed at once.

Mr. M.J. Pollet de Saint Ferjeux, Salesian College, Chadstone, will present a report on his study of computing in French schools.

Sessions over the three days have been organised along the following lines:

1. Computer Literacy and Awareness
2. The Senior School Computing Courses - Year 11 and HSC
3. Computer based education - the use of PLATO by various educational bodies in Victoria will be discussed along with the Victorian TAFE Computer-Managed Learning program.
4. Programming - "hands on" experience with a number of languages including BASIC, COMAL, PASCAL and LOGO.
5. The NEWER LANGUAGES stream - SMALLTALK, 'Sprites:', LOGO, PILOT and FORTH.
6. Teacher Education - courses currently available or under development.
7. The INSTRUCTIONAL COMPUTING stream - including a locally produced turtle, specific applications in Mathematics, and novel uses of graphics.
9. WORD PROCESSING and BUSINESS/ACCOUNTING streams will introduce concepts, demonstrate and provide 'hands on' experience of relevant user and teaching packages.

KAOS has been invited to take part in a Users Group session on May 11th from 5 p.m. to 7.30 p.m.

## HOME BREW INTERFACES CONNECTED TO MY SUPERBOARD

### 1. 40 PIN EXPANSION SOCKET INTERFACE

This board has three 40 pin sockets for expansion purposes. Two are in parallel and the third has additional buffer drivers to the 50 pin socket on the back of computer housing. Additional signals and 5 volt power take up the extra 10 pins.

A 5 watt audio amplifier is on this board and takes the output of the sound effects board to an external speaker. A volume control and switch is provided on the panel above the keyboard.

This board is plugged into the 40 pin socket on the Superboard.

### 2. SOUND EFFECTS BOARD

This board has an AY-3-8910 sound effects generator and a 1 watt amplifier with slightly modified chip select logic from that used in Practical Electronics.

### 3. SYNMON and CEGMON SELECT

This board has the two monitors on it and plugs into the Superboard monitor socket. A switch is on the panel above the keyboard.

A 6821 dual input/output port PIA is also on this board to give joystick or press button operation of the Hi- Resolution Graphics or games.

### 4. C/R DETECT

This board decodes a C/R on the data lines and actuates a tone to the internal speaker. This tone is available when LOADING, SAVEing or just keyboard inputting.

A switch on the panel turns the facility on and off.

### 5. 8K HI-RESOLUTION GRAPHICS

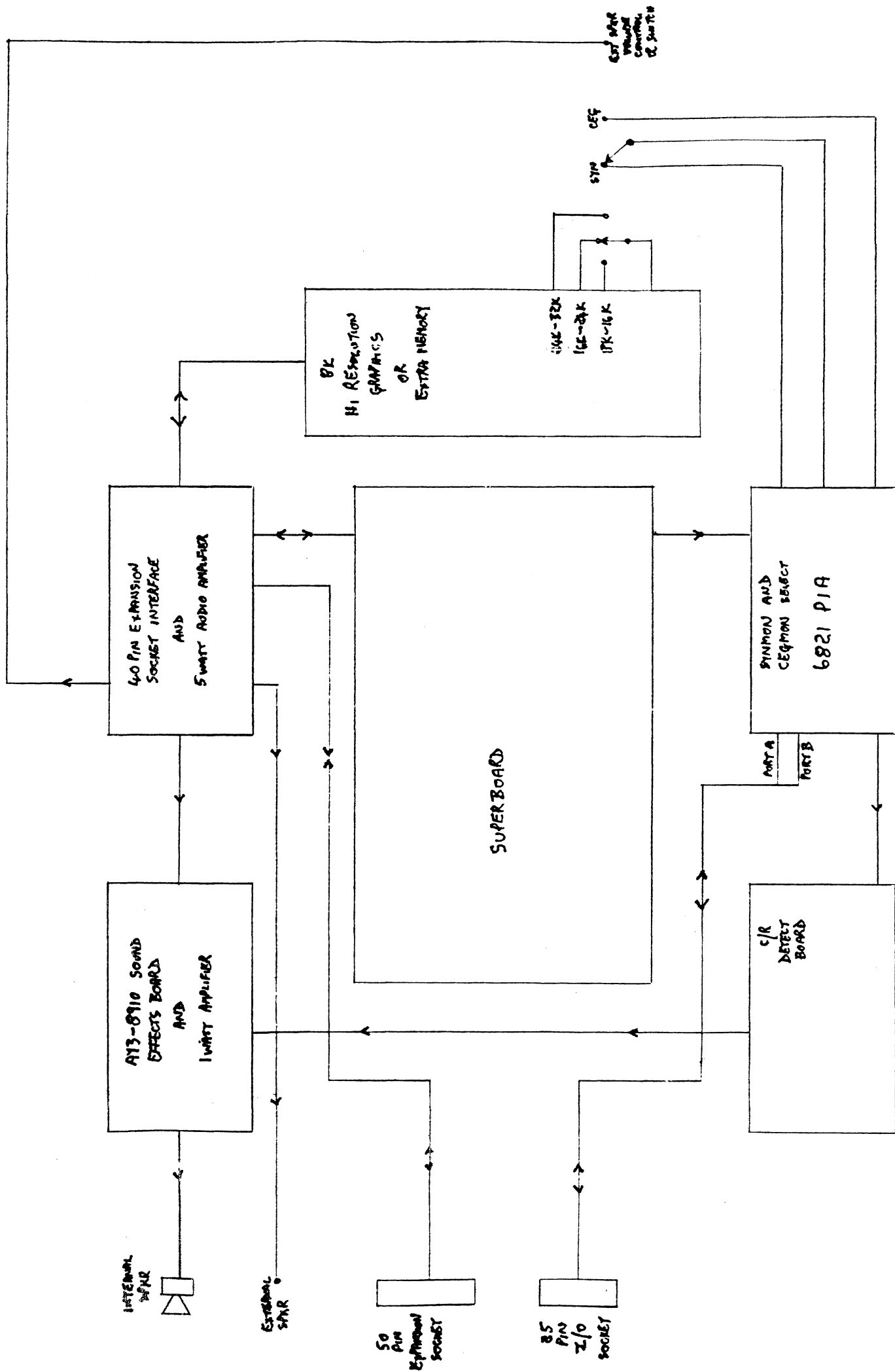
This is the modified circuit from the KAOS newsletter. It provides 40,000 dots on the screen for graphics or can be used as extra memory if required.

With the switch in the 8K-16K position the on-board memory is increased to 16K. In the next position Hi-Res Graphics are supplied to a video output socket, thus giving the normal Superboard display on one monitor and graphics on another.

In the third position the Hi-Res Graphics video is mixed with the normal Superboard output and allows superimposition of graphics and Hi-Resolution Graphics.

If anyone is interested in more details of any of these interfaces, I will supply circuit diagrams etc. on request.

Ray Richards



## MACHINE CODE PROGRAMMING

### PART 2

This month we are going to explain the Accumulator and some of its op-codes.

The registers in the 6502 have not been designed to be general in nature, but to be used for specific tasks. The X and Y registers are mainly used for counting and indexing while the Accumulator's main use is in the transfer of data and in mathematical operations. For instance, when the values from two memory locations are to be added, the first value is loaded into the Accumulator, the second is added to it and the result is stored in the Accumulator, it can then be put back in memory or used for further calculations. Data that is collected from the keyboard or to be put on to the screen, cassette etc. is also transferred, using the Accumulator. The X and Y registers may also be used to transfer data, but as the number of instructions available to perform such actions is limited, they are usually used as counters or to transfer the second byte of a 16 bit number.

The routines used in last month's article demonstrate the use of the Accumulator to transfer data.

0222	20 00 FD	JSR \$FD00	Jump to keyboard routine and return with value of key pressed stored in Accumulator.
0225	20 2D BF	JSR \$BF2D	Jump to display routine and display value stored in Accumulator on screen.
0228	4C 22 02	JMP \$0222	Jump back to start of routine.

The X and Y registers can also be used as temporary stores for data from the Accumulator

0222	20 00 FD	JSR \$FD00	Get char. from keyboard
0225	AA	TAX	Transfer char. to X register
0226	20 00 FD	JSR \$FD00	Get another char.
0229	A8	TAY	Transfer char. to Y register
022A	20 00 FD	JSR \$FD00	Get another char.
022D	20 2D BF	JSR \$BF2D	Display it
0230	98	TYA	Transfer Y to A
0231	20 2D BF	JSR \$BF2D	Display it
0234	8A	TXA	transfer X to A
0235	20 2D BF	JSR \$BF2D	Display it
0238	4C 2A FE	JMP \$FE2A	Jump to Monitor (without screen clear)

If you run this program the computer will wait for you to enter 3 characters from the keyboard, when the third char. is entered they will be displayed in reverse order eg. 1 2 3 will be displayed 3 2 1.

The stack is a 'last in first out' device, one way to visualize this is to imagine three different colour plates on a table, if a plate is picked up (LDA Red) and pushed onto the stack (PHA), then the other two are picked up and pushed onto the stack (LDA White PHA), (LDA Blue PHA), the blue plate will be on the top of the stack so that when the plates are pulled from the stack (PLA) they will come off in the order - blue, white and red. The computer has a register called the 'stack pointer' which always points to the next available memory location in the stack.

This program use the stack to save and retrieve data and illustrates the last in - first out principle.

0222	20 00 FD	JSR \$FD00	Get char. from keyboard
0225	48	PHA	Push it onto Stack
0226	20 00 FD	JSR \$FD00	Get char.
0229	48	PHA	Push it.
022A	20 00 FD	JSR \$FD00	Get char.
022D	48	PHA	Push it.
022E	68	PLA	Pull char. from stack
022F	20 2D BF	JSR \$BF2D	Display char.
0232	68	PLA	Pull char.
0233	20 2D BF	JSR \$BF2D	Display it.
0236	68	PLA	Pull char.
0237	20 2D BF	JSR \$BF2D	Display it.
023A	4C 2A FE	JMP \$FE2A	Jump to monitor (without screen clear)

The following program illustrates one method of storing data as it is entered, and retrieving it for later use.

0222	20 00 FD	START	JSR \$FD00	Get char.
0225	C9 0D		CMP #\$0D	Is it a carriage return
0227	F0 0A		BEQ REV	Yes, end of input, go reverse display.
0229	20 2d BF		JSR \$BF2D	display char.
022C	85(00)		STA \$0000	Store Acc. in location \$0000
022E	EE 2D 02	MEM	INC MEM-1	Increments by one the <u>address</u> stored at \$022D, next byte will be stored at \$0001
0231	D0 EF		BNE START	Get another char.
0233	AD 2D 02	REV	LDA MEM-1	Load Acc. with value in \$022D
0236	8D 42 02		STA MEM2+1	Store Acc. in \$0242 as new counter
0239	CE 42 02	LOOP	DEC MEM2+1	Decrement by one the <u>address</u> stored at \$0242
023C	10 03		BPL MEM2	Is value in MEM2 0 or greater, if it is get data and display it.
023E	4C 2A FE		JMP \$FE2A	MEM2 is less than 0, jump to monitor (without screen clear)
0241	A5(00)	MEM2	LDA \$(00)	Load Acc. from address in \$0242
0243	20 2D BF		JSR \$BF2D	Display it.
0246	D0 F1		BNE LOOP	Always branches back to LOOP.

This program will display the characters and store them in memory as they are entered from the keyboard, then when a carriage return is entered they will be displayed again, in reverse order.

As the data is stored in page zero a simple counter can be used, in the next article we will explain other types of counters.

NOTE: The values in brackets in change as the program runs, and there is no provision to reset them, therefore if you want to re-run the program you will have to change the byte at \$022D to 00.

Next month we will explain indexing and counting with the X and Y registers. As soon as we've done this we will be able to start writing some practical programs.

## A PROGRAM FOR THE ATARI

Recently I was looking through my issues of APC and found a program which produced a pretty neat looking three dimensional plot. (APC, Issue 6.) The program as listed was for an HP85 and so I decided to see how easy it was to convert the program for the Atari. The result of this conversion is listed below.

```
10 GRAPHICS 8+16
11 COLOR 1
12 SETCOLOR 1,0,14:SETCOLOR 2,0,0
20 X1=128:X2=X1*X1:Y1=96:Y2=96
30 FOR X=0 TO X1
40 X4=X*X
50 A=SQR(X2-X4)
55 IF A=0 THEN FOR I=A TO A STEP 6:GOTO 70
60 FOR I=-A TO A STEP 6
70 R=SQR(X4+I*I)/128
80 F=(R-1)*COS(18*R)
90 Y=I/3+F*Y2
95 IF I=-A THEN M=Y:M1=Y:Y=Y1+Y:GOTO 120
100 IF Y<=M THEN 160
110 M=Y:Y=Y1+Y
120 PLOT X1-X+10,Y
130 PLOT X1+X+10,Y
140 NEXT I:NEXT X
150 GOTO 150
160 IF Y>M1 THEN 140
170 M1=Y:Y=Y1+Y:GOTO 120
```

An unexpected result of this conversion was the detection of a bug in the Atari software. (Whether it is the BASIC or the floating point ROM I don't know.) The bug is that -0 does not equal 0. Line 55 was added to bypass the bug. To show yourself that there is a bug enter in the immediate mode, PRINT -0, hit return and look at the result. (It is -0E-<8). If you enter PRINT -0\*-0 you will get an error 11. This caused the program to crash at line 70 before line 55 was added.

Apart from the bug the result of the conversion was excellent and the conversion itself very simple. If you run the program there is plenty of time for that cup of tea. It takes a long time.

by Kelvin Eldridge.

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## KAOS LIBRARY NEWS

At the last meeting Jannene, (our librarian) announced the rules under which the library will be run. For those of you who missed out, you can ask her at the next meeting or give either of us a call on

The library is growing. We still need more donations and hope that more of you will be using the library in the near future. There are some ninety magazines available for loan and well over another hundred available for perusal. We even have MICRO, No. 31 as referenced in Bernie Wills' article in the December issue of this magazine.

Finally thanks to those who have offered assistance and those who have donated freely their prized magazines.

by Kelvin Eldridge.

## THE MERCURY TILT JOYSTICK

Gerry from the Atari User Group rolled up to one of the KAOS meetings with this strange looking joystick, which he got from the U.S.A.

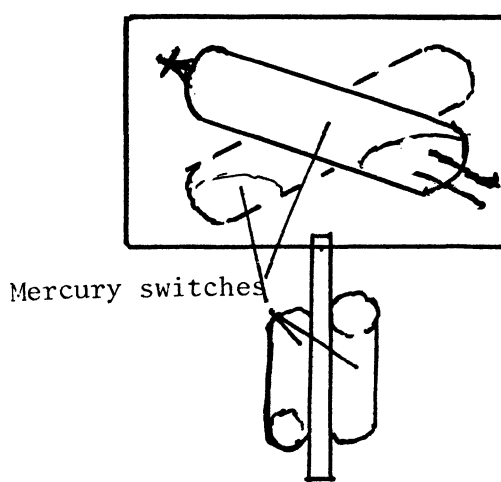
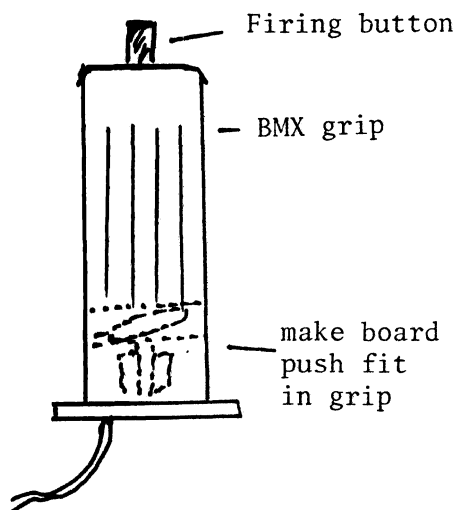
It consisted of a bicycle grip (BMX) with a button on top and a lead hanging out of the bottom which went to the computer. You hold the thing vertically in your hand and as you tilt your wrist over, you activated the switches inside to simulate a joystick. It will work in all 8 directions with vertical as the stop.

When we dismantled it, we found it consisted of two pieces of board and four mercury tilt switches. When the handle is vertical, none of the switches are made. As you tilt the handle in the direction required, the appropriate switch is closed and you are away.

If you wish to make one yourself, you can obtain the tilt switches from Ellistronics in Melbourne for about \$1.50 each, however Tandy have some in their catalogue which should be arriving on the shelves very soon and theirs are smaller than the ones from Ellistronics. Dick Smith sells them also but at a very high price.

It takes two people to get the BMX grips, one to hold the kid down and one to take them off the bike. Make sure you get both of them (one each). The illustration below may give you some idea of the construction, the rest is up to you.

P.S. Don't forget to mark which direction is left, right, up, down etc..



D.J.A

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### COMPUTER ASSISTED LEARNING....

#### "MACBETH" QUIZ (written in BASIC)

Have fun with William Shakespeare's 'Macbeth'. Four sets of ten multiple-choice type questions, with comments and score tallies, suitable for Year 11 and HSC students of English Literature are available on cassette tape (suitable for OSI) or on diskette (suitable for Apple II DOS 3.2 or DOS 3.3 systems). Teachers would find it useful as a bank of test questions or as a tutorial for students.

TAPE: \$2.00

DISKETTE: \$5.00

#### SUPER-QUIZ

Interactive General Knowledge Quiz suitable for Year 7 to Year 9 students or for fun with unwary friends! Available on cassette (suitable for OSI) or on diskette (suitable for Apple II DOS 3.2 or DOS 3.3 systems).

TAPE: \$2.00

DISKETTE: \$5.00

```

10 REM Competition Worm *** Sean Davidson *** 130182
15 REM Check screen format and machine type-
20 VB=0:IFPEEK(57088) < 128THENVB=1
30 WI=PEEK(65505):LL=32:IFWI > 32ORVB=1THENLL=64
40 C1=54016+PEEK(65504):IFPEEK(65506)=1THENC1=55040+PEEK(65504)
50 FORX=1TO30:PRINT:NEXT:PRINTTAB(WI/2-8);"COMPETITION WORM"
60 PRINT:PRINT:PRINTTAB(WI/2-8);"by Sean Davidson"
70 PRINT:PRINT:PRINT:INPUT"INSTRUCTIONS";A$:IFASC(A$)=89THENGOSUB900
100 PRINT:PRINT"HIT SPACEBAR TO CONTINUE":POKE11,0:POKE12,253:X=USR(X)
110 FORX=1TO30:PRINT:NEXT:C2=C1-LL
120 BUG=42:DIMS(2,400):LE(1)=1:LE(0)=1:M(0)=0:M(1)=0
130 REM BORDER
140 FORX=0TOWI:POKEC2+X,161:POKEC2-23*LL+X,161:NEXT
150 FORX=0TO23:POKEC2-X*LL,161:POKEC2-X*LL+WI,161:NEXT
160 GOSUB800:REM GET INITIAL POSITION OF BUG
170 KB(1)=191:KB(0)=127:SH(1)=226:SH(0)=233
175 S(1,1)=C1-8*LL+10:S(0,1)=C1-16*LL+10
180 HP(1)=1:TP(1)=1:WC(1)=4:HP(0)=1:TP(0)=1:WC(0)=4
200 W=0:W=K=W+1:REM Alternate Worm/Caterpillar
220 POKE530,1:POKE57088,KB(K):REM Keyboard routine
230 P=PEEK(57088):POKE530,0:IFVB=1THENP=255-P
250 M=M(K):REM IFP=255ORP=1THEN220
260 IFM <> -1ANDP=2236RP=207THENM=1
270 IFM <> 1ANDP=247ORP=183THENM=-1
280 IFM <> LLANDP=191ORP=159THENM=-LL
290 IFM <> -LLANDP=239ORP=231THENM=LL
300 M(K)=M:IFHP(K)=-1THENHP(K)=199
320 OH(K)=HP(K):HP(K)=HP(K)+1
330 ST=S(K,OH(K))+M
340 IFHP(K)=200THENHP(K)=0
350 SS=PEEK(ST):IFSS=SH(1)ORSS=SH(0)ORSS=161THENHP(K)=HP(K)-1:GOTO700
360 S(K,HP(K))=ST
370 IFPEEK(ST)=BUTHENWC(K)=4:GOSUB800
380 POKES(K,HP(K)),SH(K)
390 BC=BC+1:IFBC > 100THENBC=0:GOSUB800
400 IFWC(K) > 0THENWC(K)=WC(K)-1:LE(K)=LE(K)+1:GOTO450
410 TT(K)=TP(K):TP(K)=TP(K)+1:IFTP(K)=200THENTP(K)=0
440 POKES(K,TT(K)),32
450 IFLE(K) < 5THEN200
460 PRINTCHR$(13);"WORM"LE(1);" CATERPILLAR"LE(0);:GOTO200
700 IFLE(K) < 6THEN200
710 LE(K)=LE(K)-1:GOTO410
800 BC=20:POKEBP,32
810 BP=INT(C1-(RND(1)*(WI*23))):IFPEEK(BP) <> 32THEN810
820 POKEBP,BUG:RETURN
900 PRINT"The idea of the game is to eat the bug and not crash into"
910 PRINT"the wall, your opponent or yourself"
920 PRINT" If you crash you will keep shrinking until you turn"
930 PRINT"or escape":PRINT"If you eat a bug you will grow 4 sections longer"
940 PRINT" CONTROL KEYS ARE:":PRINT" 2 3 4 5 and 9 0 : -"
950 REM remove REM in 250 and worms will only move when a key is down"

```